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ABSTPACT

It is the intent of the occupational needs assessment model to provide data on present and future occupational training requirements for local communities, place the job skill needs in a priority ranking, and relate the occupational need data to the labor market and educational curriculum. This paper shows the development of this model, indicating how data sources flow into the model to relate the job market demand to training needs for the community, and specifying the data gathering activities for implementing the model. A comprehensive evaluation program with an accurate needs assessment process behind it can be an effective instrument of change within the college and within the community. (Author/AH)

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A MODEL FOR ASSESSING COMMUNITY OCCUPATIONAL NEEDS THROUGH INTER-GOVERNMENTAL DATA ANALYSIS

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INTRODUCTION

The assessment of community needs is difficult if not impossible to totally derive. Therefore, it has been the general concensus of the majority of planners over the centuries to let the community evolve at its own rate of speed, with whatever imbalances develop among the demographic characteristics of the population, depleting whatever resources are available by anyone who has the whim and support to do so, letting shortages and gaps lay dormant or expand among all community systems, and creating systems for an elitist group without real observation of the distribution of needs for the total community. When research efforts have resulted with worthwhile techniques for assessing community needs, it has been a common practice for the material developed to be shelved or used as case studies among the academicians and lofty idealists rather than implemented and developed further for practical application to the art of community planning.

When community needs assessment is discussed, the comprehension of the term must be clearly delineated, for there are as many varied efforts today in needs assessment as there are definitions. For the purposes of this paper, community needs assessment refers to the quantified identification of shortages or lacking characteristics found among services, facilities, resources, the over-all population, and within individuals that make up any given community system. Occupational needs assessment refers to the identification of job areas in which there exist shortages of manpower with the associated identification of educa-

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tional training that will be needed to decrease the occupational gap in community needs. And the term, occupational needs assessment model, refers to the procedure or set of techniques that can be used that are representative of the community and simulate selected data which result with planning tables relative to occupational needs.

The approach taken to occupational needs assessment presented in this paper begins with the assumption that analysis such as this model can provide is not only of interest to educational planners, but also to planners in most every professional field concerned with either the supply of trained individuals coming out of educational institutions or the demand of training services. No matter what the area of interest may be, people are always at the heart of the matter, with education affecting all persons. Therefore the needs of the people are everyone's concern. Based on this assumption, a joint effort was initiated to collect and coordinate data from various agencies that have a common goal of identifying manpower needs building a continuous model that will provide data among the various agency planners for assessment of occupational needs in the community.

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BACKGROUND INFORMATION ON MODEL DEVELOPMENT

A consortium of community colleges with two assisting universities in the State of Florida have been working for the last two years on a pilot United States Office of Education funded Title III grant known as the Needs Assessment Project. The major goal of the project has been to develop a valid, realistic model to research the educational needs of the community on a continuous, dynamic basis. The purpose of the model is to provide educational institutions with quantified data and an accurate picture of community needs on which to base curriculum planning decisions. It is also the desire of the Center for Community Needs Assessment, responsible for coordination of the research, to work with other planning agencies that have mutual interest and can derive similar benefits from the pilot study. The purpose of the inter-agency cooperative effort is to insure that the research development continues after the funding has been depleted due to the momentum gathered as the model has been built and due to the mutual interest in keeping the planning tool part of their research capabilities.

The pilot research work has been concentrated in seventeen (17) of the 67 Florida counties, selecting those that could represent the most diversity in characteristics. After much of the work had been completed, it was decided that due to the scope of community needs assessment, certain segments should be broken out and research as a modular system on each of the segments would improve the implementation features of the total model. Therefore, the Needs Assessment Project has focused on socio-economic needs, internal organization needs, surveys of selected community need, cultural enrichment needs, facility planning, and occupational assessments.

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WHY RESEARCH IS NEEDED ON TRAINING NEEDS

There are many areas in which the community or region served by an educational institution wants programs available. Citizens want courses of interest in the arts and crafts, re-training programs due to the rapid obsolescence of skills and knowledge from advanced technology, leisure courses for life enrichment, basic two-year curriculum for university transfer programs, special group programs for the retired citizens or adult populace derivatives, health related programs, job preparation programs, and other continuing education programs for life-long learning. No longer is education limited to reading, writing, and arithmetic or to the needs of the more vociferous who by virtue of position or wealth have influenced curriculum development over the centuries.

Education has been broadened to include within its boundaries of definition comprehensive programs for life-long learning. It has moved from a school-centered concept to a community-centered concept. (Seay,1974). To achieve balance among the educational offerings, resources must be allocated within the educational system according to the needs and interests of the community -- knowing full well that there is a scarcity of resources and all community needs and interests cannot be met at one time.

Increasing Emphasis on Accountability

It is becoming more and more evident that student enrollment will not continue to increase. This drop of enrollment, therefore, affects the amount of money received by educational institutions, as well as how the resources will be allocated. It also brings an urgency to the administration to plan an effective curriculum helpful to the community's progress in

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serving more diverse groups of citizens -- if the enrollment is to be stabilized or increased through service to a broader spectrum of the community. In order to plan programs that will be most helpful to the progress of the community, a systematic method for obtaining reliable knowledge of community educational needs is required to insure that the training will indeed help fill the gaps in the economic, social, and cultural future of the country.

Needs assessment has become a major focus at all levels of education. This is due in part to the increasing interest at all levels of government in accountability and program planning based on needs of the citizenry. At the National level, President Nixon in an address to Congress stated:

> . . . the greatest need in the school systems of the nation is to begin the responsible open measurement of how well the educational process is working. (Compact, 1972)

In Florida, the Department of Education has clearly stated its commitment to a program of statewide needs assessment:

> The effort to secure clear goals and objectives is supported at the state level by needs assessment activities designed to identify broadly those goals which education should pursue and to college information for assigning priorities. Such needs assessments encompass general education, occupational education, and advanced professional education. (Education Renewal, Supt. Christian, 1972)

As education becomes more responsive, it builds positive communication links between the community and educational system, keeps the public aware of community educational priorities when funds are requested, and provides accountability to the public for tax monies spent for the education of society.

Curriculum Planning

In terms of basic purposes for evaluating educational programs -- both policy determination and curriculum planning -- the results of many

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present day practices have been rather disappointing. Theories rather than data from evaluation have provided much of the basis for changing and improving curricula. Only in rare exceptions can changes in education programs be traced to reliable research.

Indeed, much of the assessment of education programs has been based on easily obtainable data of questionable relevance. The increasing sophistication of education in accommodating individual differences in personal interests, abilities, goals, and ambitions, coupled with a growing concern for maintenance of individuality in an increasing dehumanized and technical society appears to be resulting in a strong pressure for schools to become more concerned with serving the individual. Implicit in this is the assumption that the schools can best serve society by serving the individuals who constitute that society. This places education systems in a markedly different position from that which is held a generation ago. Understanding the learner and the learning process itself with feedback from students and built-in evaluation procedures in many disciplines make curriculum building more of a personal process between instructors and students.

Change and modernization of training procedures, though, comes slowly. For oftentimes, despite lip service to the institutionalized cliches of individualized instruction, educational training programs are girded by a regulating academic propriety and directed social pressures -- these making for a most prescriptive curricula.

The future, which education continually proposes to properly shape, should be embodied in a curriculum stressing social goals, intellectual aims and personal needs. Relevant data as to the needs and desires of both

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student and society must be considered in making reliable decisions as curriculum planning.

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THE FOCUS OF THE ASSESSMENT MODEL

The way to aid educational institutions in planning programs for the many needs of the community is to provide the decision-makers with timely, objective information about the community educational needs. Therefore, the major goals of an assessment model is to provide realistic, valid information researched from the community for relevant time periods that ranks or prioritizes community needs.

Because of the rapid rate of growth in the number of occupational programs and the number of persons served in Florida (Florida State Advisory Council, 1973), the Consortium decided that the model in its first phase of development would emphasize occupational needs. Further, that the occupational needs assessment model would be developed using one of the colleges as the prototype for the methodology development. The community college can serve as the prototype effectively because it is an educational institution working to fill the gap left in the formal structure. Its curriculum is broad, encompassing community interests courses, career education programs, technical and adult continuing education programs, university transfer courses, and both pre-professional and para-professional training. Therefore, as the model is expanded beyond the occupational needs assessment, the same college and community prototype can be used for methodology development.

It is the intent of the assessment model on occupational needs to provide data on present and future occupational training requirements for local communities, place the job skills needs in a priority ranking, and relate the occupational need data to the labor market and educational curriculum.

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The model, then will focus on a prototype technique with the community as the service area and the college as a training institution. In the community portion of the model, occupation information will be aggregated by Dictionary of Occupational Title codes. The occupational list will be prioritized according to "need" as indicated by demand and broken down by worker traits. Projections are then tempered by the projective algorithm using matrix ratio estimates. Census data are used for validating percentage distributions and to insure that the projections in occupational growth follow the same patterns of community population growth and trends. In order to compare data from the Bureau of Labor Statistics, Manpower Administration, and Bureau of Census, the occupational classification schemes must be analyzed and translated into a common coding scheme since those used in the census surveys are not compatible with the Dictionary of Occupational Titles (DOT Coding Scheme).

The occupational projections of job needs in local communities are next screened to those selected occupations relevant to the goals and responsibilities of the community college. It is important to keep in mind that the community college has constraints placed upon it in terms of scope of training responsibility since it is not the sole educational institution. Therefore, those constraints in curriculum that limit programs offered by the college, priorities for which budget can be allocated, and direction in which the college has an impact on the community must be identified. Once constraints are stated, the abundance of data are reduced to the portion of the community information each college can find meaningful and translate into decisions for curriculum planning

Figure 1 shows how data sources flow into the model to relate the job market demand to training needs for the community.

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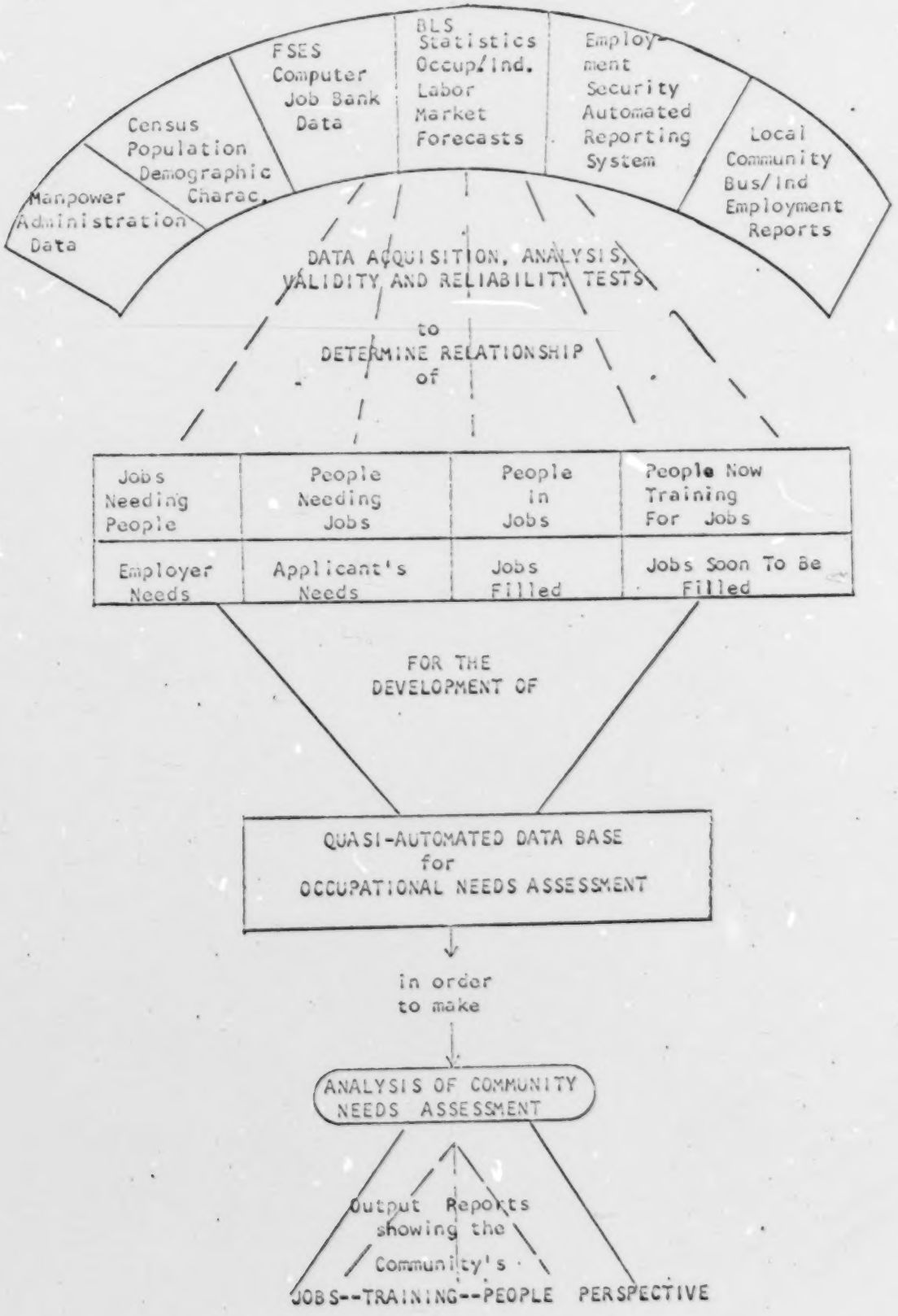

Figure 1: Relationship of Job Market

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METHOD USED IN DEVELOPING OCCUPATIONAL NEED MODEL

A primary decision early in the discussion on techniques to be used in model development centered on the comprehensive survey approach versus existing data research approach. Since the discovery of already collected data on community occupational needs would have a far-reaching advantage over a single survey, and since the key to a dynamic model is continuous information for updating the data bank, it was decided that a thorough research effort would be undertaken to determine what data were being collected common to all Florida counties. Once the data sources were identified, selected information would be analyzed for applicability and ease in relating variables among various data sources.

After working with many advisory committees, councils, and governmental agencies, four basic data sources were decided upon from which selected information would be gleaned. They were the Florida Department of Commerce, Bureau of Labor Statistics, local Florida State Employment Service offices, and the Manpower Administration. Specific data needed to build the model were: location indicators, major occupational distributions, labor distribution within major business/industry classification, education-experience-salary ranges for each occupation, labor market turnover rates, profile of occupation matrix ratio by industry, expansion trends, and replacement data. These data were to be related to educational programs for occupational training.

The intent of this approach (i.e., building a model by relating interagency data available on a continuous basis) is to take advantage of existing research keeping costs to the educational planners to a minimum, as well as providing them with a reliable technique for comparing job market demand with the supply of trained persons being prepared through the educational system.

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Based on the need to relate the four perspectives of the Needs Assessment Occupational Model (i.e., jobs needing applicants, people needing jobs, people in jobs, and people now training for jobs), the data sources have been studied in terms of timeliness, validity, relevancy, comprehensiveness and method of processing. As indicated earlier there are many sources for data on occupational trends, but not all meet the above criteria. Therefore, the most manageable data sources have received the focus and concentrated analysis for relating variables for the printed results in the Needs Assessment Model.

To fulfill the objectives for the occupational needs model, analyses of the various data sources lead to a refinement of the available reports, computer tapes, and periodical update tables to the following sources:

1. Two U. S. Department of Commerce printed reports form the Social and Economic Censuses (updated yearly) and the U.S. Census of Population Industry/Occupation tables (updated every five years). The Public Use Sample computer tapes have also been most helpful in validation.

2. Two Florida Department of Commerce reports printed within the Research and Statistics Section (monthly) and the Division of Employment Security (quarterly).

3. U. S. Department of Labor, Bureau of Labor Statistics projection report volumes through 1980. (Being updated and revised for Florida).

4. Florida State Employment Service computer tapes know as Job Bank for local offices (updated daily, received monthly).

The major problems encountered were incompatibility of coding schemes, inconsistency of data elements across agency sources, and difficulty in retrieving selected information for the same periods of time.

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Processes of the model include predictions of occupational manpower and labor force forecasts based upon local and national data, current and future estimations of the number of students being trained in private and public institutions within these occupations, and identification of the unmet need and its future curricular significance. Output of the model become, both, input data to successive stages of the model and information for educational planners and decision makers to use for resource acquisition and allocation.

In distinguishing between society's need for manpower and the demand for such persons, oftentimes too much emphasis has been placed upon want (the desire or wish for something) as opposed to need inherent in demand (the need backed yp by the allocation of resources). The crucial factor which must be considered is the likely level of effective demand in the specified target year. The need for college-educated manpower must be considered in the planning process primarily to the degree that this need may be supported financially in the future. An assumption can be made that the greater the need, the more society is willing to pay for a qualified person to fill an occupational position -- therefore there is a relationship of "job need" priority to the salary range for an occupation.

Forecasts of future manpower requirements must be derived and then related to the requirements for the various educational programs. Thus, the problem is twofold: First, to project the overall employment demand likely to exist over the next 5-10 years within various occupations, then to translate the occupational needs into subsequent demands for various training programs.

Figure 2 shows the activities followed in developing the reports and tables via the occupational needs model.

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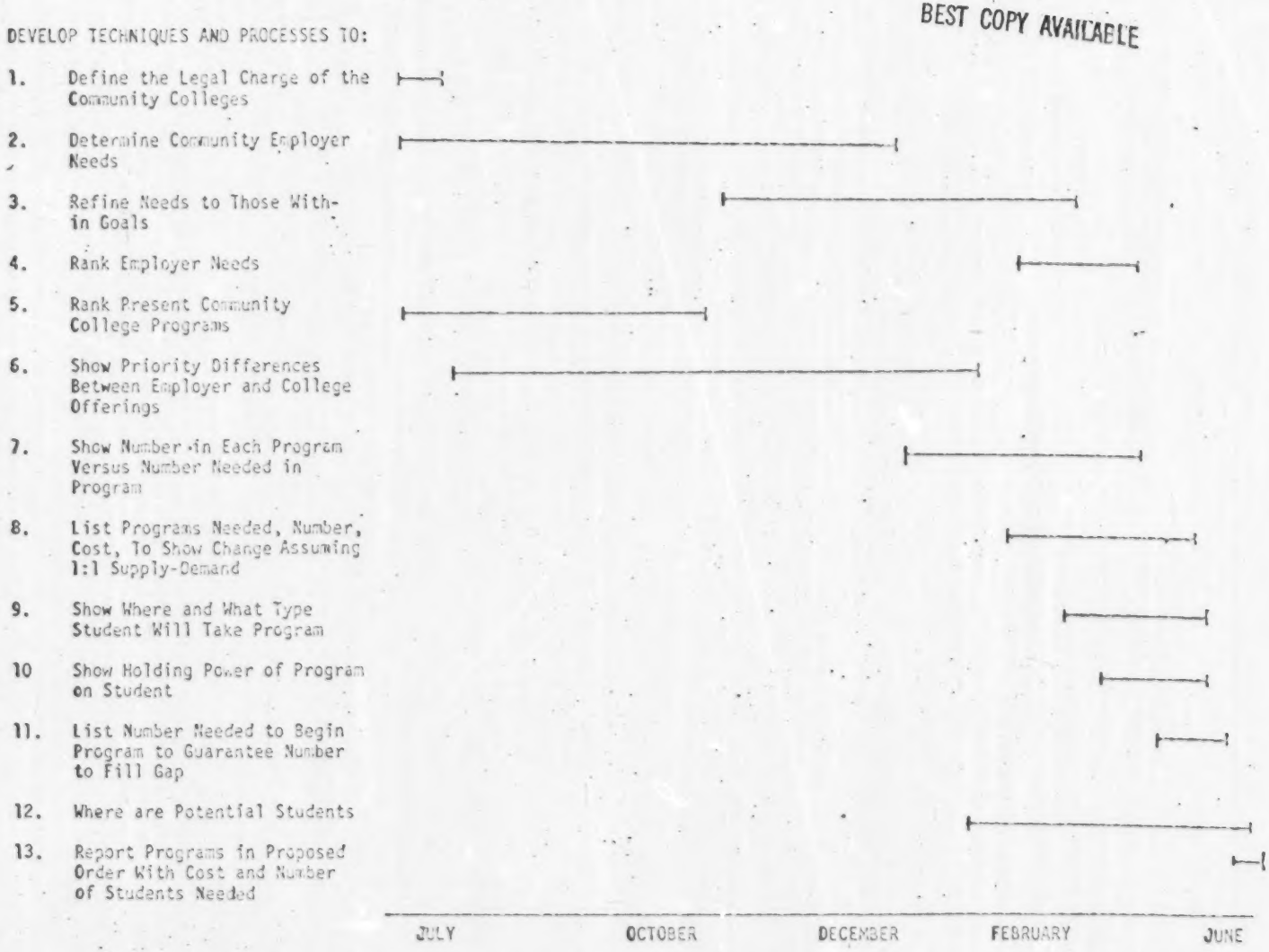
DEVELOP TECHNIQUES AND PROCESSES TO:
1. Define the Legal Charge of the Community Colleges
2. Determine Community Employer Needs
3. Refine Needs to Those Within Goals
4. Rank Employer Needs
5. Rank Present Community College Programs
6. Show Priority Differences Between Employer and College Offerings
7. Show Number in Each Program Versus Number Needed in Program
8. List Programs Needed, Number, Cost, To Show Change Assuming 1:1 Supply-Demand
9. Show Where and What Type Student Will Take Program
10 Show Holding Power of Program on Student
11. List Number Needed to Begin Program to Guarantee Number to Fill Gap
12. Where are Potential Students
13. Report Programs in Proposed Order With Cost and Number of Students Needed
JULY
OCTOBER
DECEMBER
FEBRUARY
JUNE

FIGURE 2: ACTIVITIES TO BUILD OCCUPATIONAL NEEDS ASSESSMENT MODEL

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The estimates of average annual openings include openings resulting from growth in each occupation and the replacement of workers who die or withdraw from the labor force. Not included in the estimates are openings created by workers who leave an occupation for another occupation. In other words, the estimates reported out of the model do not include net occupational mobility, only a count of new jobs (growth) and openings created (replacement).

Program totals are arrived at by aggregating occupational coded data from the National Occupation-Industry Matrix. This matrix contains data from nonagricultural payroll employment, which, in 1973, accounted for more than 90 percent of the State's total employment. The matrix data have been supplemented by data for self-employed and agricultural workers from the 1970 Census of Population adjusted to 1973 levels using projected trends of employment in those categories.

A salary range that can be expected by occupation, the average education requirements, the experience range indicated by employers in the local area, and the length of time particular occupations remain open and unfilled are presented in the tables produced from the model to help decision-makers by providing additional indicators of job need priorities.

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CONCLUSION

The most positive outcome has been the development of relationships among certain items from the various data sources that can allow the college to project community occupation needs from a relatively small nubmer of variables with relatively little time and resources. A number of useful reports can be produced from the model that focus on the educational training needs of the community from an employment perspective. Questions can be answered such as: What are the job needs and their associated educational requirements?; Which job needs can the college do something about?; What statistical data sources are dependable for projecting job needs?; What is the best way to continually look at the job market for all the citizens of the community? It is imperative to note that as the model is expanded beyond the occupational needs assessment, the same college and community prototype may be used for methodology development. Figures two (2) and three (3) provide examples of reports that can be prepared when the full Assessment Model is implemented.

A comprehensive evaluation program with an accurate needs assessment process behind it can be an effective instrument of change within the college and within the community. In the college, it should provide a more flexible and realistic program for the student, allowing him more opportunity to take what he needs for social and cultural growth and more channels of training according to his own potential in job skills.

Within the community, the needs assessment model results in greater job and class mobility, higher individual self-concept, better knowledge to the individual for competing in his society, more help to problem

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youth, and economic impact predictions for local environmental planning. A major contribution to the community is the forcefulness of ending isolation through more experience and exposure so more realistic goals for career choices can be made.

Once expanded, the total needs assessment model can become a tool to help education be more responsive to the needs of a community, indeed, to show up discrepencies based on facts rather than guesswork. The model is much better than anything we have now and can be revolutionary in bringing about positive change for the most important human process of all -- the education of man. Certainly, the needs assessment model can be the vehicle by which the formal educational system moves from its existing state to what it really should be.

The occupational needs model can also be helpful to other agencies and community planners for urban or rural areas, since the reports and tables produced are applicable to the community's development for the future. The data developed out of the model can provide planners with information about the needs of the community that have never been available to them before in such a compact form. The model is logical and relatively straight forward. The techniques for an organization to follow in collecting and coordinating information on community needs are innovative, direct, inexpensive, and will require small amounts of time by research analysts.

The significance of the model is not equal to its value as a research tool for planning. Only through continuous use of the model, constant up-dating of the information, validating the predictive results, evaluating the model's effectiveness, taking corrective action from the evaluation,

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and utilization of the model in decision making will this research effort make it as a changing agent for society. Knowledge about the model's capability and implementation of its techniques is the only way to keep it from being shelved.

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